

DOPHE 136
HAZARDOUS MATERIALS

SW/1.1./1377



BOX#

008 SW-8676

The second issue we would like to clarify is the quantity of plutonium in the proposed waste.

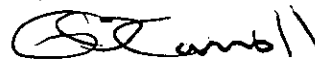
It was called to our attention the restriction of 2.0 disintegration per minute (dpm) per gram of soil in the Colorado State Regulations, Part 4, Section 4.60, Permissible Levels of Radioactive Material in Uncontrolled Areas. It is DOE's policy when doing dose evaluations to maximize the potential dose by using the maximum values obtained from the waste characterization. The 2.5 pCi/gram of plutonium applied to the dose evaluations of the referenced incinerator ash was the maximum value detected in 28 samples submitted for analysis. The majority of the samples contained below the 2 disintegrations per minute identified in the State regulations. Consequently, the 2.5 pCi/gram is an artificial modeling construct and certainly would not represent the average in the waste.

Because of these issues we propose the following questions:

1. Is there any level of detectable radioactive material in the incinerator ash which would be acceptable for disposal at the CSI landfill?
2. Would it be possible to perform additional characterization on the ash waste and exclude materials found to contain > 2 dpm plutonium from disposal at CSI?
3. Besides the incinerator ash in question, could CSI accept other DOE wastes that meet the DOE requirements of free release, as described above?
4. Would the State of Colorado approve of any specific sampling and analysis protocols to establish the levels of contamination in the waste?

Your further consideration of these issues is appreciated. Please contact Mr. Rex Borders at (505) ~~271-8107~~ if we can further clarify these issues.

845-5076


Constance L. Soden
Director
Environmental Safety & Health Division

ADM Conservation Services Inc/CSI 10/19/1999
Solid Waste - Correspondence - General - Response to Denial of
concurrency to Dispose of Incinerator Ash Waste Containing
Plutonium from LANL

SW/1.1/1377



SW/1.1/88-04

Department of Energy
Office of Environmental Policy and Assistance
Radiological Control Technical Position (RCTP 97-E01)
Ref: DOE 5400.5, Radiation Protection of the Public and Environment

Issue: Appropriate designation for property containing residual radioactive material meeting DOE-approved Limits for release.

Several DOE offices and contractors requested the appropriate description or label for property containing residual radioactive material that has been certified as meeting DOE Authorized Limits or Supplemental Limits ("Authorized Limits"). Some contractors suggested to DOE field offices that the property meeting Authorized Limits should be labeled as "non-radioactive." It is not appropriate to label such material as non-radioactive for several reasons. First, nothing is non-radioactive; all property will contain at least background levels of radioactive materials. Second, Authorized or Supplemental Limits for property containing residual radioactive material are based on the premise that some residual radioactive material above background may be present, albeit at low levels. Although many properties or items surveyed may contain residual radioactive material that is indistinguishable from background, the property is certified as suitable for release, not as being "non-radioactive." In many cases, Authorized Limits are established for the restricted or prescribed end use of the property. In these situations, release of the property might not be acceptable for release under another end use.

Other DOE offices have asked if the material should continue to be designated by the waste category it falls under, even if the material was certified to meet Authorized Limits for release. For example, should soil containing residual uranium, thorium, or residual radium at levels meeting Authorized Limits for release be classified as low-level radioactive waste or Atomic Energy Act (AEA) 11e.(2) byproduct material?

Released property containing residual radioactive material within the Authorized Limits should be treated like any other effluent that meets required standards. They are neither radioactive waste nor non-radioactive materials. Such waste streams, discharges or releases are typically described as effluents meeting permitted levels, permitted effluents or merely emissions or effluents. However, once released they are not normally described as being low level waste or any other form of radioactive waste.

Order DOE 5400.5 defines residual radioactive material as radioactive material remaining in or on soil, air, equipment or structures. Residual radioactive material includes residual source, byproduct and special nuclear material and naturally-occurring (technologically enhanced) and accelerator-produced radioactive materials, but excludes radioactive material contributing to background radiation¹. If determined to be a waste, property containing residual radioactive material that doesn't meet Authorized Limits must be categorized and managed in accordance with requirements for its appropriate radioactive waste type (e.g., low-level waste, AEA 11e.(2) byproduct material and so forth).

¹

Naturally Occurring Radioactive Material (NORM) is treated as background material if the radioactivity or radiation hazard is not enhanced as a direct result of DOE activities (e.g., the material is in an unregulated commercial product and is used by or for DOE in the intended manner such as a grinding wheel containing thorium sands used for grinding). Property containing NORM is subject to DOE radiological protection requirements in DOE 5400.5 if the radioactivity has been enhanced or made radioactive as a result of DOE activities (e.g., DOE processed some ore for a nonradioactive component and the processing concentrated the activity in the residue). NORM is a subset of Naturally Occurring and Accelerator-Produced Radioactive Material (NARM).

Property meeting Authorized Limits should not be categorized as being in one of these waste categories². It should be described and managed as property certified as meeting Authorized Limits for release. DOE does not require any specific wording as long as the limits and conditions of release are noted. For example, at a site where DOE has approved Authorized Limits for residual radioactive material in wastes to be disposed of at an onsite landfill not authorized under Order DOE 5820.2A, an appropriate designation or descriptor for wastes meeting the criteria is: "waste containing residual radioactive material at levels certified to be less than Authorized Limits for disposal at an onsite landfill." Similarly, hazardous waste meeting Authorized Limits for disposition to a RCRA-permitted Treatment, Storage or Disposal (TSD) facility could be termed "hazardous waste certified to contain residual radioactive material at or less than DOE-approved Authorized Limits³ for release to RCRA-permitted TSD facilities." Such releases should be done consistent with the DOE guidance addressing such waste (DOE95 and DOE97).

Technical Position:

Property released in accordance with Authorized Limits may not be termed "non-radioactive" and should not be classified as a specific radioactive waste type (e.g. low-level waste or 11e.(2) byproduct material). Such material should be described as property certified to comply with limits for the designated use or disposition of the property, or property containing residual radioactive material at or below the applicable Authorized Limits. Examples of acceptable designations or descriptors that have been used or proposed include:

- Property certified to comply with applicable Authorized Limits for release from radiological control to [designate use or condition] (e.g., unrestricted release, disposal in an on-site landfill or recycling as waste containers).
- Hazardous waste containing residual radioactive material certified to be at or less than Authorized Limits established for release to a RCRA-permitted Treatment, Storage and Disposal (TSD) facility.
- Waste certified not to contain residual radioactive material in excess of Authorized Limits for unrestricted release.
- Personal property certified to meet Authorized Limits for unrestricted release and reuse.

References:

DOE95, "Application of DOE 5400.5 requirements for release and control of property containing residual radioactive material," R. Pelletier (EH-41) to distribution, November 17, 1995.

DOE97, "Establishment and Coordination of Authorized Limits for Release of Hazardous Waste Containing Residual Radioactive Material," M. Frei (EM-30) to distribution, January 7, 1997.

²

This applies only to the radioactive component; it does not effect the categorization of a waste as RCRA hazardous waste.

³

It would also be acceptable to state it as "hazardous waste certified not to contain residual radioactive material in excess of Authorized Limits..."